Remarks

Claims 1-31 are pending in the application.

Claims 1-6, 14, 17, 27-29 and 31 are rejected under 35 U.S.C. 102(e) as being anticipated by United States Patent Number 6,606,427 issued Graves et al. on August 12, 2003.

Claims 7-13, 15, 16 18-26 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Graves et al. in combination various other references.

Rejection Under 35 U.S.C. 102

Claims 1-6, 14, 17, 27-29 and 31 are rejected under 35 U.S.C. 102(e) as being anticipated by United States Patent Number 6,606,427 issued Graves et al. on August 12, 2003. The Office Action states that Graves et al. teaches all of the elements of applicants' independent claims 1 and 31. Applicants respectfully disagree and traverse this ground of rejection for at least the following reasons.

The Office Action points to MEMS-based switching element 19 of Graves et al. as being applicants' recited at least one wavelength sieve/combiner that operates on discrete wavelength units. However, such a MEMS-based switching element is **not** the same as applicants' recited element. Clearly, a MEMS mirror-based switch such as is MEMS-based switching element 19 of Graves et al. is **not** at all structurally similar to applicants' recited at least one wavelength sieve/combiner that operates on discrete wavelength units as shown in applicants' FIGs. 2 and 3 and explained in applicants' specification at page 9, line 6 through page 10, line 9. Moreover, the MEMS-based switching element of Graves et al. does **not** correspond functionally to applicants' recited element.

More specifically, regarding the functional differences, applicants note that a switch merely routes each light signal input thereto from its respective input port to a selected output port. In other words, there is no sieve function nor any combining function performed by MEMS-based switching element 19. There is only a switching function.

Note that Graves et al. describes the functionality of MEMS-based switching element 19, stating at column 21, lines 15-50 as follows:

> The MEMs-based switching element 19 comprises optical diverters 48, 50 arranged in rows and columns to direct light from an input on the perimeter of the arrangement of optical diverters to an output also on the perimeter of the arrangement. The MEMS-based switching element 19 has row outputs, which are in alignment with the inputs and are on the opposite side of the arrangement of optical diverters 48, 50 relative to the inputs. The MEMS-based switching element 19 also has column outputs situated along paths at right angles with paths between the inputs and row outputs. A self-focusing collimating lens 52 at each input of the MEMS-based switching element 19 directs light received from an optical fiber 54 into the arrangement of optical diverters. At each row and column output another self-collimating lens 56 and 56', respectively, receives light from the arrangement and directs the light along a respective fiber 58 and 58'. The controller 26 controls the state of each of the optical diverters, through a mirror drive signal, in order to direct the light as required. FIG. 7 shows an optical diverter 48, or mirror, in an activated state, whereby, an optical signal Sc1 entering the arrangement of optical diverters along a row is redirected along a column to the self-collimating lens 56' at the respective column output of the MEMS-based switching element 19. The other optical diverters in the figure are shown in a non-activated state, for example, optical diverter 50, whereby an optical signal Sc2 is not redirected. The optical signal Sc2 passes through the arrangement and enters the collimating lens 56 where it is passed along the fiber 58. The switching matrix 18 is a self-contained switch circuit pack, providing all the switching interconnect needs of all the ports and all the inter-matrix feeds for one wavelength. It achieves this by incorporating, as part of its functionality, an optical crosspoint array (i.e. using one or more MEMS-based switching elements). One or more complete switching matrix can be accommodated on a physical circuit pack.

Clearly, such a device is unrelated to applicants' sieve/combiner which is described in their specification at page 2, lines 23-29 to be functionally very different from a switch, stating:

> Each wavelength sieve/combiner can split a wavelength division multiplexed (WDM) beam into various discrete wavelength unit beams each of which contains prescribed wavelength channels, or it can cause multiple copies of part or all of the wavelengths to be supplied as outputs. Each wavelength sieve/combiner may also function in the opposite direction to combine such various beams into one wavelength division

> multiplexed beam. Typically, each fiber is associated with one wavelength sieve/combiner. (Emphasis added)

Note that if applicants had intended a switch rather than their recited sieve/combiner they could have simply stated a switch, but they did not, because that is not what they meant. Moreover, if applicants had intended to include a switch as a species within their sieve/combiner, there would be support for this in their specification. Clearly then, applicants' recited sieve/combiner is **not** structurally or functionally the MEMS-based switching element of Graves et al., nor does it include such a switching element, but instead is the device defined by applicants in the specification.

Therefore, Graves et al. does not teach applicants' recited sieve/combiner, and so applicants' independent claims 1 and 31 are allowable over Graves et al. under 35 U.S.C. 102.

Note too that micro mirrors 48 and 50 of Graves et al., cited separately as applicants' array of micromirrors, are actually part of MEMS-based switching element 19. This can be seen from Graves et al., column 21, lines 34-41

> FIG. 7 shows an optical diverter 48, or mirror, in an activated state, whereby, an optical signal Sc1 entering the arrangement of optical diverters along a row is redirected along a column to the self-collimating lens 56' at the respective column output of the MEMS-based switching element 19. The other optical diverters in the figure are shown in a non-activated state, for example, optical diverter 50, whereby an optical signal Sc2 is not redirected.

Graves et al. further shows in FIG. 8, which is in a functional block diagram of MEMS-based switching element 19, and explains at column 21, lines 51 to column 22, line 10 that micro mirrors 48 and are clearly merely parts of MEMS-based switching element 19.

Thus, since applicants have recited the micrormirrors as being a separate element from the sieve/combiner, while in Graves et al. the micromirrors are part of what is cited by the Office Action as being the sieve/combiner, the analysis of Graves et al. by the Office Action is missing either the sieve/combiner or the micromirrors.

Graves et al. thus does not teach or suggest all of the limitations of applicants' independent claims 1 and 31. As a result, applicants' independent claims 1 and 31 are

allowable over Graves et al. under 35 U.S.C. 102. Since all of the dependent claims that depend from the currently amended independent claims include all the limitations of the respective independent claim from which they ultimately depend, each such dependent claim is also allowable over Graves et al. under 35 U.S.C. 102.

Rejection Under 35 U.S.C. 103(a)

Claims 7-13, 15, 16 18-26 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Graves et al. in combination various other references. Each of these grounds of rejection applies only to dependent claims, and each is predicated on the validity of the rejection under 35 U.S.C. 102 given Graves et al. Since the rejection under 35 U.S.C. 102 given Graves et al. has been overcome, as described hereinabove, and there is no argument put forth by the Office Action that any of the other cited references supplies that which is missing from Graves et al. to render the independent claims anticipated, these grounds of rejection cannot be maintained.

Therefore, applicants' claims are allowable over Graves et al. under 35 U.S.C. 103.

Conclusion

It is respectfully submitted that the Office Action's rejections have been overcome and that this application is now in condition for allowance. Reconsideration and allowance are, therefore, respectfully solicited.

If, however, the Examiner still believes that there are unresolved issues, he is invited to call applicant's attorney so that arrangements may be made to discuss and resolve any such issues.

In the event that an extension of time is required for this amendment to be considered timely, and a petition therefor does not otherwise accompany this amendment, any necessary extension of time is hereby petitioned for, and the Commissioner is authorized to charge the appropriate cost of such petition to the **Lucent Technologies Deposit Account No. 12-2325.**

Respectfully,

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By _____
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Lucent Technologies Inc.

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